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ABSTRACT

This paper reports on research to examine the types of motivation related to school achievement. A total of 1428 students from an inner city high school in the Montreal (Quebec) area participated in the study, 714 males and 714 females. The students ranged in age from 12 to 18, and approximately 40 percent were minorities (Hispanic, Asian, Black). The study used the "Academic Motivation Scale" (AMS), a measure of motivation toward education based on self-determination theory. "Amotivation" indicates that no link between actions and the ensuing outcomes is perceived; "intrinsic motivation" refers to being engaged in an activity for itself and for the pleasure and satisfaction derived from participation; "extrinsic motivation" pertains to behavior in which the goals of actions extend beyond those inherent to the activity itself. The results of the study demonstrated that academic motivation is significantly related to grade point average (GPA), and that motivation does not occur under the same conditions for boys and girls or for junior-high and senior-high students. Amotivation appeared to be a better predictor of school achievement for girls and junior-high students, while intrinsic motivation seemed to foretell school achievement for boys and senior high students. These data revealed that the relationship between GPA and motivation emerged differently for boys and girls, as for younger and older students. The data also indicated that amotivation was the type of motivation most significantly related to GPA for both boys and girls, across all levels of secondary schooling. The findings suggested that development of self-determined motivation in adolescent boys and girls should be an important goal for educators, and that further study of amotivation could lead to better understanding of adolescent academic motivation and perhaps help to identify at-risk students. (Contains 31 references.) (ND)

ED 391 783

WHAT TYPE OF MOTIVATION IS TRULY RELATED TO SCHOOL ACHIEVEMENT? A LOOK AT 1428 HIGH-SCHOOL STUDENTS	Presenting author:
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INTRODUCTION

Motivation, a force that energizes and directs behavior toward a goal (Eggen & Kauchak, 1994), could certainly be perceived as one of the most important psychological concepts in education. A series of commission reports, several special issues of scholarly and professional journals, many books, as well as our friends and family, have reminded us that the problem of motivation in adolescence remains. In Canada, this issue is particularly striking when we consider the dropout rate at the high school level. In particular, the province of Quebec has one of the highest school dropout rates in the world (for an industrialized country): almost 40% of adolescents drop out before completing high school. According to Vallerand and Senecal (1993) such a problem could be attributed in great part to a lack of motivation toward school.

OBJECTIVE

The primary purpose of the present research is to examine the type(s) of motivation which are truly related to school achievement. This study emerged from the works of Uguroglu and Walbert (1979), Parkerson, Schiller, Lomax and Walbert (1984), as well as Gottfried (1990), among others, who found a strong correlation between academic motivation and school achievement.

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THE CONCEPT OF MOTIVATION

Several conceptual perspectives have been proposed to better understand academic motivation. The theory developed by Deci and Ryan (1985, 1991) is interesting in that it proposes three main types of motivation, which are placed along a self-determination continuum (Figure 1). These are amotivation (AMO), extrinsic motivation (EM) and intrinsic motivation (IM).

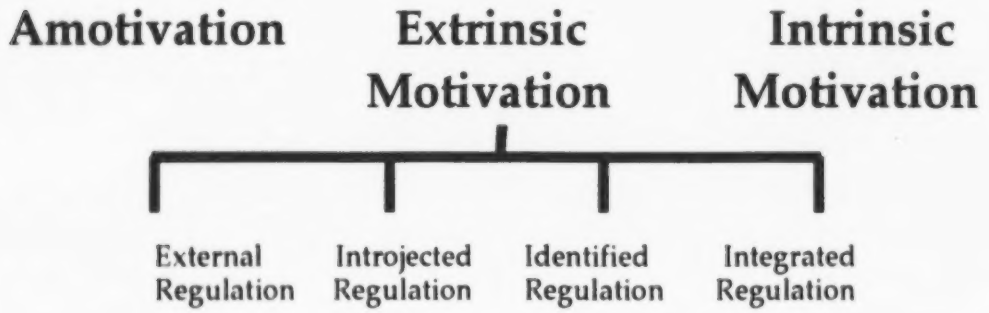

Figure 1
Representation of the self-determination continuum developed by Deci and Ryan (1985, 1991).

This theoretical approach has generated a considerable amount of research and could prove to be enlightening when applied to the field of education. The three types of motivation go beyond the usual intrinsic/extrinsic dichotomy and allow for a more accurate analysis of motivation in education, thereby opening the door to innovative research. Furthermore, the construct developed by Deci and Ryan allows for the assessment of motivation in a multidimensional fashion.

Intrinsic Motivation

In general, intrinsic motivation (IM) refers to the fact of being engaged in an activity for itself and for the pleasure and satisfaction derived from participation (Deci, 1975). An example of this would be students going to school because they like to learn.

Extrinsic Motivation

Contrary to IM, extrinsic motivation (EM) pertains to a wide variety of behaviors in which the goals of action extend beyond those inherent to the activity itself. They are behaviors which are engaged in as means to an end and not for their own sake (Deci, 1975). Originally, it was thought that EM referred to behaviors performed without self-determination, and could therefore only be prompted by external contingencies. However, Deci and Ryan (1985, 1991) have elaborated a self-determination theory in which various types of EM exist, ordered along a self-determination continuum. In fact, these researchers claim that there are four types of EM, some of which are more self-determined and may be performed through self-regulation. From lower to higher levels of self-determination, they are: external, introjected, identified and integrated regulation (Figure 1).

External Regulation

External regulation corresponds to EM as it generally appears in the literature. That is, an action is regulated through external means such as rewards and constraints. An example of this would be students going to school to avoid a punishment or to get a reward from their parents.

Introjected Regulation

With introjected regulation, the students begin to internalize the external means regulating their actions. Accordingly, students who attend school because they would feel guilty staying home begin to internalize the motives for their actions. The external contingencies (being forced to go to school) have somewhat been internalized. Thus, this type of extrinsic motivation is not truly self-determined since it is limited to the internalization of past and present external contingencies.

Identified Regulation

When the action becomes valued and truly chosen by the student, Deci and Ryan (1991) claim that the internalization of extrinsic motives becomes regulated through identified regulation. For instance, grade 11 students may decide to take an advanced mathematics course that they do not like because they feel it is important for their future. With respect to identified regulation, the students in this example behave willingly and without any external contingency, merely because they have decided to do so.

Integrated Regulation

The most self determined form of EM is referred to as integrated regulation. According to Deci and Ryan (1991), integrated regulation occurs when the individual's action is perceived as personally valued and freely performed. Integrated regulation differs from identified regulation in that individuals are usually more committed. Thus all their actions are authentic, for they are interconnected as well as freely and carefully chosen. An example of this would be students who, in light of their career goals, decide to follow an advanced science program, to study diligently, and to commit themselves to meeting all the academic requirements.

An increasing amount of research has been conducted to evaluate the EM formulation defined by Deci and Ryan. The results consistently support the basic premises of the formulation. For instance, results from confirmatory factor analyses on various motivation scales indicate the presence of three types of extrinsic motivation in education (Ryan & Connell, 1989; Vallerand and Reid, 1989; Karsenti, 1993).

Deci and Ryan (1985, 1991) have also posited that, along with intrinsic and extrinsic motivation, a third type of motivational construct must be considered in order to fully understand human behavior. This concept is termed amotivation (AMO). Individuals are amotivated when they do not perceive a link between their actions and the ensuing outcomes. Students in such a state

are neither intrinsically nor extrinsically motivated. Rather, they are non-motivated or amotivated. Accordingly, these students do not know why they are going to school. In many ways, amotivation can be seen as similar to learned helplessness (Abramson, Seligman & Teasdale, 1978), since amotivated individuals experience feelings of incompetence and expectancies of uncontrollability. According to Vallerand et *al.*, (1989), non-motivated students perceive their actions as caused by forces out of their own control, and they may eventually stop the action.

METHOD

Sample

A total of 1428 students from both junior and senior levels of an inner city high school in the Montreal area (Quebec, Canada) participated in this study. Surprisingly, 714 were males, and 714 were females. The students ranged in age from 12 to 18 years, with a median age of 15 years. Approximately 40 % of the students were minorities (Hispanic, Asian, Black). A total of 75 classes took part in the study.

Measures (Questionnaire)

In Canada, a new measure of motivation toward education, the *Academic Motivation Scale*[1] (AMS), has been developed by Vallerand and his colleagues (1989). This scale is based on the tenets of the self-determination theory developed by Deci and Ryan (1985, 1991). It is composed of five subscales assessing intrinsic motivation, three types of extrinsic motivation (external, introjected, and identified regulation), and amotivation. Integrated regulation is not assessed in the AMS because pilot data revealed that this particular type of extrinsic motivation was not highlighted as a perceived reason for participating in educational activities at the high school level. Also, factor analyses on experimental forms of the AMS (Vallerand et *al.*, 1989; Karsenti, 1993) showed that integrated regulation does not significantly distinguish itself from identified regulation.

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[1] In French, the *Échelle de Motivation en Éducation.*

The scale used in the present study is an offspring of the AMS, specially adapted for adolescents. It is referred to as the AAMS (*Adolescents' Academic Motivation Scale).*

There are 28 items in the AAMS. The rating is done on a 1-7 Likert scale with 7 representing maximum appropriateness. The AAMS assesses students' motivational styles with regard to academic activities. Similar to the *Self-Regulation Questionnaire* elaborated by Ryan and Connell (1989), the AAMS assesses intrinsic motivation and external regulation, as well as introjected and identified regulation toward two main academic activities, *"going to school"* and *"doing homework"*. However, it should also be noted that the AAMS has been specifically adapted for high-school students, while the Ryan and Connell scale, and the Vallerand, Blais, Brière and Pelletier (1989) scale are respectively better designed for elementary-school children and junior-college students.

The AAMS also assesses amotivation in the two types of academic activities. It therefore appears that this motivation scale assesses most of the concepts proposed in the theory developed by Deci and Ryan. Like the scale of Vallerand et *al.* (1989), the operational definition of the AAMS reflects the conceptual definition of both intrinsic, extrinsic motivation, as well as amotivation. The items of the scale refer to one's perceived reasons for engaging in a given activity, be they for the activity itself or for reasons lying outside the activity.

Extensive data from various studies (Karsenti, 1993; Karsenti & Thibert, 1994) support the reliability and validity of the AAMS. Concerning the reliability of the scale, results from this study reveal that the internal consistency (Cronbach alpha) of all subscales is excellent, exceptionally ranging from .89 to .94. With respect to the validity of the AAMS, the present results are also very encouraging. A factor analysis confirms the five-factor structure of the AAMS and thus provides some support for the factorial validity of the scale.

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We ran Pearson correlation coefficients between the various subscales which confirmed the structure as well as the existence of the self-determination continuum (Table 1). Furthermore, these correlations were represented by an excellent fit of the simplex structure (Jegerski & Upshaw, 1984) between the five types of motivation. Thus, closely related types of motivation show a more positive correlation, while unrelated concepts such as amotivation and intrinsic motivation show a negative relationship.

Table 1: Pearson Correlation Coefficient (High School) Between the Various Motivation Subscales

	Amotivation	*EM External regulation*	*EM Introjected regulation*	*EM Identified Regulation*	*IM Intrinsic Motivation*
Amotivation	-	-.0493 $p < 0.05$	-.1115 $p < 0,001$	-.2763 $p < 0,0001$	-.2982 $p < 0,0001$
EM External regulation	-	-	.5422 $p < 0,0001$	.4061 $p < 0,0001$	.1769 $p < 0,0001$
EM Introjected regulation	-	-	-	.6020 $p < 0,0001$	.4929 $p < 0,0001$
EM Identified Regulation	-	-	-	-	.5253 $p < 0,0001$
IM Intrinsic Motivation	-	-	-	-	-

Procedures

In the eighth week of the fall term of 1993, 1428 high-school students were asked to complete the questionnaire previously described (including some personal data such as age, gender, academic program, etc.). A standard explanation was given to all the students involved. School achievement was obtained through information collected from both the questionnaires and the students' records at the end of the school year. Record data measures used in this study included overall grade point average (GPA) for mathematics, science and language arts. As shown in Figure 2, the grade point averages of the students were grouped into four categories: (1) *non-achievers* (GPA < 60%); (2) *low achievers* (GPA=60-69%); (3) *achievers* (GPA=70-79%); (4) *high achievers* (GPA=80-100%).

RESULTS

Correlations among students' motivation scores for the 5 subscales and school achievement (GPA) reveal that amotivation is the type of motivation most related, though negatively, to school achievement ($r = -0.28$, $p < 0{,}0001$). Positive correlations between identified regulation ($r = 0.14$, $p < 0{,}001$), intrinsic motivation ($r = 0.16$, $p < 0{,}001$) and GPA were also obtained. All other types of motivation did not correlate to GPA (Figures 2, 3, 4 and 5; Table 2). It is interesting to note that when partial correlations between GPA and the various types of motivation were run while amotivation was controlled, the relationship between identified regulation, intrinsic motivation and achievement was not as strong, though still significant. This might be due to the strong effect of amotivation on GPA.

Table 2: Pearson Correlation Coefficients (High School) between the Various Motivation Subscales and GPA.

	Amotivation	*EM External regulation*	*EM Introjected regulation*	*EM Identified Regulation*	*IM Intrinsic Motivation*
All	r = -.28 $p < 0.0001$	r = .01 *N.S.*	r = .02 *N.S.*	r = .14 $p < 0.0001$	r = .16 $p < 0.0001$
♀ *Girls*	r = -.30 $p < 0.0001$	r = . 00 *N.S.*	r = . 05 *N.S.*	r = .15 $p < 0.0001$	r = .10 $p < 0.001$
♂ *Boys*	r = -.24 $p < 0.0001$	r = .03 *N.S.*	r = -.01 *N.S.*	r = .11 $p < 0.05$	r = .20 $p < 0.0001$
Junior High School	r = -.30 $p < 0.0001$	r = .03 *N.S.*	r = .03 *N.S.*	r = .14 $p < 0.0001$	r = .09 $p < 0.001$
Senior High School	r = -.25 $p < 0.0001$	r = -.01 *N.S.*	r = .01 *N.S.*	r = .14 $p < 0.0001$	r = .25 $p < 0.0001$

Note: It must be highlighted that the observed value of the correlation coefficient is probably less than its real value. This difference may be attributed to the limited number of categories (4) used to represent the grade point average of the students.

When comparing correlations obtained for boys and for girls, four interesting findings are also to be noted in Table 2. Though negative, correlations between girls' amotivation and their GPA (r = -.30) are somewhat higher than correlations between boys' amotivation and GPA (r = -.24). Moreover, while also negative, the correlations between junior-high students and their amotivation (r = -.30) are higher than those obtained between senior-high students and their amotivation (r= -.25). As well, it is interesting to note that the correlation between the boys' intrinsic motivation and their GPA (r = .20) is significantly higher than the correlation between the girls' intrinsic motivation and their GPA (r = .10). Finally, the correlations between senior-high students' intrinsic motivation and their GPA (r = .25) are significantly higher than the correlations between junior-high students' intrinsic motivation and their GPA (r = .09).

DISCUSSION

The originality of the present study lies in its attempt to uncover the type of motivation most related to school achievement. Such a study was feasible because a scale based on the definition of extrinsic motivation, elaborated by Deci and Ryan (1985, 1991), was used to assess motivation. This allowed us to make a more refined, accurate and somewhat new assessment of academic motivation.

The results of this study have demonstrated that academic motivation is significantly related to school achievement (GPA). They are intriguing because they tend to run contrary to past research which has found that extrinsic motivation (as it generally appears in the literature) is generally negatively related to school achievement (Mitchell, 1992; Pintrich and Garcia, 1991; Harter and Connell, 1984).

Our results also show that motivation does not occur under the same conditions for boys and girls, nor does it for junior-high and senior-high students. Amotivation seems to be a better predictor of school achievement for girls and junior-high students. On the other hand, intrinsic motivation seems to better foretell school achievement for boys and for senior-high students.

These data suggest that the relation between GPA and motivation emerges differently for boys and girls, as for younger and older students. They also suggest that amotivation is the type of motivation most significantly related to GPA, for both boys and girls, across all levels of secondary schooling.

The importance of academic motivation is obvious today, particularly in the province of Quebec where teachers, professionals, policy-makers, and the general public are really concerned about declining achievement scores and escalating drop-out rates. Therefore, the development of self-determined motivation in adolescent boys and girls should be an important goal for educators.

In future studies, it also appears important to consider amotivation, the third motivational construct elaborated by Deci and Ryan (1985, 1991), in order to better understand adolescent academic motivation. Since amotivation seems to be an excellent indicator of GPA, a valid test could allow school boards to identify at-risk students. The results of such tests would then have important pedagogical implications for professionals who could immediately work with at-risk students, thus possibly preventing them from failing and eventually dropping out.

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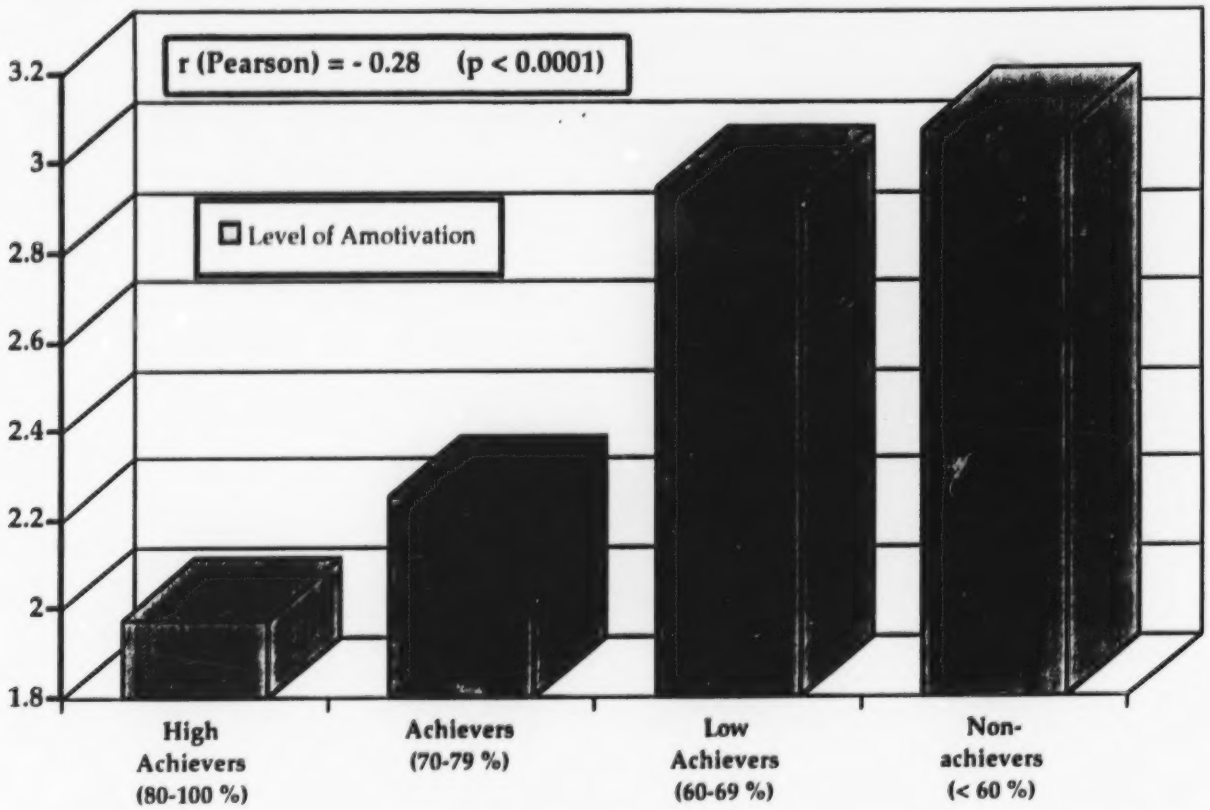

FIGURE 2
The Relationship between Amotivation and Grade Point Average (GPA).

* The rating was on a 1-7 Likert scale, with 7 representing maximum appropriateness.

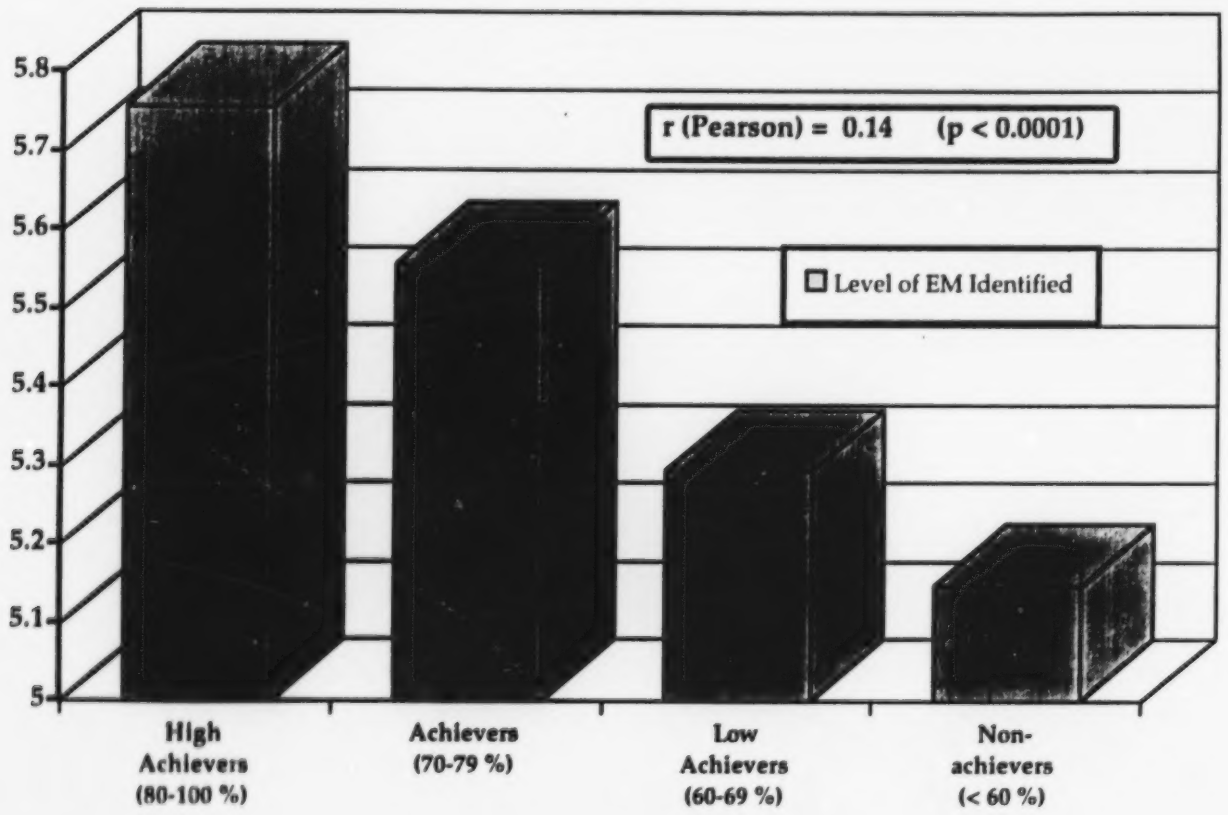

FIGURE 3
The Relationship between Identified Extrinsic Motivation and GPA.

* The rating was on a 1-7 Likert scale, with 7 representing maximum appropriateness.

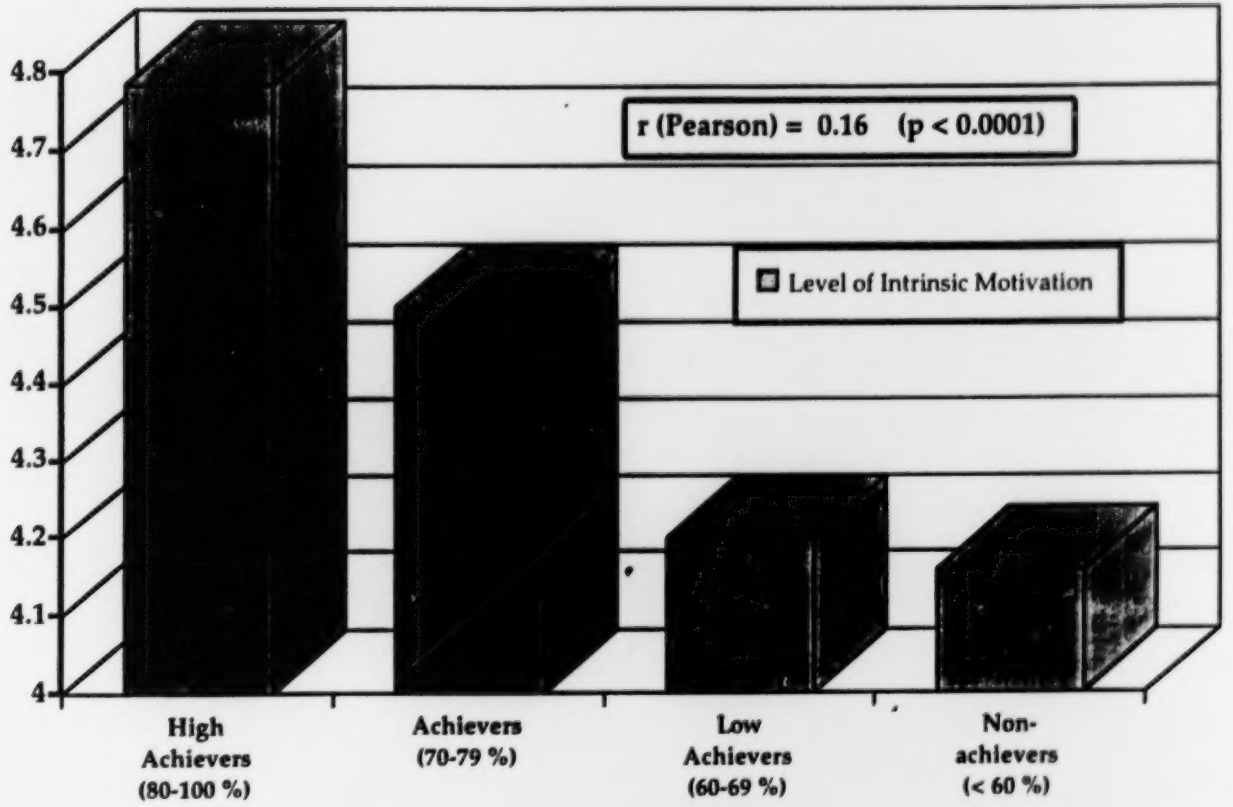

FIGURE 4
The Relationship between Intrinsic Motivation and Grade Point Average (GPA).

* The rating was on a 1-7 Likert scale, with 7 representing maximum appropriateness.

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